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REMARKS

Claims 1-17 and 36 are pending in this application. Claims 1-5 and 12-15 are rejected under 35 USC 103(a) as being unpatentable over Wolfla in view of Middelman. Claims 6-9 are rejected under 35 USC 103(a) as being unpatentable over Wolfla in view of Middelman and further in view of either Pecht or SU1719756A1. Claim 10 are rejected under 35 USC 103(a) as being unpatentable over Wolfla in view of Middelman and further in view of Kim. Claim 11 is rejected under 35 USC 103(a) as being unpatentable over Wolfla in view of Middelman and further in view of Cantello. Claims 16 and 17 are rejected under 35 USC 103(a) as being unpatentable over Wolfla in view of Middelman and further in view of Schienle. Claim 36 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form.

Claim 1 has been amended herein to incorporate the limitations of now-cancelled claim 7; i.e. "forming the continuous gap by: exposing the top surface to a first pass of laser energy having a first parameter to form the continuous gap; and exposing the continuous gap to a second pass of laser energy having a second parameter different than the first parameter to change a geometry of the continuous gap" The applicants respectfully traverse the rejection of claim 7 (now amended claim 1) because the Examiner has not provided a *prima facie* basis for the rejection. The Examiner has cited the combination of Pecht or SU1719756A1 with Wolfla and Middelman as the basis for the rejection of claims 6-9. However, nowhere does the Examiner provide a citation in the prior art to the specific process limitations of claim 7 cited above. The Examiner's comments on page 3 of the Office Communication seem to be directed only to the claim 6 limitations regarding groove depth. The Examiner and the cited prior art are silent with regard to the process limitations of claim 7, and thus the *prima facie* burden of supporting the rejection under 37 CFR 103 has not been satisfied. Accordingly, claim 1, which now contains the limitations of cancelled claim 7, as well as its dependent claims 2-6, 8-11, 13-15 and newly added claim 37, are now in condition for allowance.

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Claim 12 has been amended herein to place it into independent form. The applicants respectfully traverse the rejection of claim 12 as being obvious in view of Wolfla and Middelman. Claim 12 includes the limitations of "forming a pattern of grooves in a top surface of the layer of ceramic insulating material, the pattern formed to coincide with a direction of a fluid stream over the top surface when the component is in use." The Examiner addresses these limitations by stating on page 3 of the Office Communication that "The intended use of the gap as a fluid channel does not impart patentability to the article manufacturing process." However, the cited limitations of claim 12 are more than a statement of intended use; these are substantive process steps that are not taught by the cited prior art. The intended use may be to use the insulated component as an airfoil, for example, but the substantive process steps are to form the pattern in a particular way to coincide with a direction of a fluid stream that will flow over the component. By dismissing these claim limitations as being only a statement of intended use, and by failing to provide a citation to a prior art reference that teaches these steps, the Examiner has failed to establish a *prima facie* case for obviousness. Accordingly, claim 12 is believed to be in condition for allowance.

Claim 16 has been placed into independent form herein. The applicants respectfully traverse the rejection of claim 16 as being obvious in view of Wolfla, Middelman and Schienle. Schienle describes the use of grooves on a substrate surface in order to enhance the adhesion of a coating layer. (column 3, lines 9-10) Schienle also describes the use of grooves on the top surface of the coating layer (column 3, lines 60-62) Schienle fails to teach or describe the use of grooves in the middle of the coating layer. The Examiner suggests that mid-depth grooves would be obvious "depending on the degree of build up desired for building a seal...or depending on whether a first grooved layer is being rebuilt with a second top layer which requires grooves." These conclusions by the Examiner amount to hindsight that is not supported by the cited art. Specifically, there is no teaching or suggestion in the cited art for a coating layer that is built up with multiple sub-layers wherein grooves are formed on a top surface of a sub-layer prior to it being over-coated. Such a process would be counter-productive, since adhesion concerns occur in the field on ceramics


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only at the interface of two dissimilar materials, while it is generally known to deposit a full desired thickness of a single ceramic material without concern for spalling or separation at a mid-layer depth. Thus, the prior art actually teaches away from the conclusion drawn by the Examiner. If the Examiner disagrees with this argument, he is respectfully requested to provide the citation where such a multi-layer/grooved coating is taught or suggested. Similarly, there is no teaching or suggestion in the cited art for a repair process wherein a grooved ceramic layer is rebuilt with a second top layer. If the Examiner disagrees with this argument, he is respectfully requested to provide the citation where such a repair process is taught or suggested. Lacking some such teaching or suggestion in the art, the rejection of claim 16 under 35 USC 103 should be withdrawn.

Claims 37-39 have been added herein. No extra claim fee is required since the number of pending independent and total claims remains below the number originally filed. Each of these new claims includes limitations directed to a process that widens a bottom of the gap to a U-shaped bottom geometry. Such process steps are not found in the cited prior art, and thus, these new claims are believed to be in condition for allowance.

Reconsideration of the amended application in light of the above Remarks and allowance of claims 1-6, 8-17 and 36-39 are respectfully requested. The Examiner is welcomed to call the undersigned attorney should he believe that a telephone conference would be helpful in resolving any further open issues related to the application.

Respectfully submitted,



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